R E P O R T  R E S U M E S

ED 018 269 PS 000 491

THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN. MANUAL OF RECORDING AND OBSERVATION TECHNIQUES FOR MOTHER-CHILD INTERACTION.

BY- HESS, ROBERT D. AND OTHERS
CHICAGO UNIV., ILL., URBAN CHILD CENTER

PUB DATE 67

EDRS PRICE MF-$0.25 HC-$0.32 6P.

DESCRIPTORS- *PRESCHOOL CHILDREN, *NEGRO MOTHERS, URBAN ENVIRONMENT, SOCIOECONOMIC BACKGROUND, COGNITIVE DEVELOPMENT, TESTING PROGRAMS, MEASUREMENT INSTRUMENTS, MEASUREMENT TECHNIQUES, *INTERACTION PROCESS ANALYSIS, *TAPE RECORDINGS, *OBSERVATION, CHICAGO,

THIS MANUAL DESCRIBES MEASURES USED IN "THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN" PROJECT AT THE UNIVERSITY OF CHICAGO. THE SAMPLE FOR THE STUDY CONSISTED OF 163 NEGRO MOTHER-CHILD PAIRS SELECTED FROM 3 SOCIOECONOMIC CLASSES BASED ON THE FATHER'S OCCUPATION AND THE PARENTS' EDUCATION. A FOURTH GROUP INCLUDED FATHER-ABSENT FAMILIES. THE MOTHERS WERE INTERVIEWED AT HOME AND THE MOTHERS AND CHILDREN WERE TESTED AT THE UNIVERSITY OF CHICAGO WHEN THE CHILDREN WERE 4 YEARS OLD. FOLLOW-UP DATA WERE OBTAINED WHEN THE CHILDREN WERE 6 AND AGAIN WHEN THEY WERE 7. THE INTERACTIONS OF THE MOTHER AND CHILD DURING THE TOY SORTING (PS 000 486) AND BLOCK SORTING (PS 000 487) TASKS WERE OBSERVED AND TAPE RECORDED. THE OBSERVER WAS IN AN ADJACENT ROOM WITH A ONE-WAY OBSERVATION WINDOW AND RECORDED A RUNNING DESCRIPTION. THE DESCRIPTION TAPE AND THE TAPE OF THE MOTHER'S AND CHILD'S VOICES WERE COORDINATED BY SUPERIMPOSED TIME SIGNALS. THE DESCRIPTIONS WERE MADE AT THE LEVEL OF THE MOLAR BEHAVIORAL ACT, WITH THE CONTEXT OF THE ACT GIVEN EXPLICITLY. INITIAL TESTING WITH 2 OBSERVERS INDICATED THAT ONLY 1 OBSERVATION TAPE WAS NECESSARY. AN ADVANTAGE OF THE OBSERVATION TAPE TECHNIQUE IS THAT IT PRESERVES RAW DATA FOR ANY LATER, MORE REFINED ANALYSES. THE COMPLETE SET OF PROJECT MANUALS COMPRISES PS 000 475 THROUGH PS 000 492. (DR)

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# THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN

Robert D. Hess, Principal Investigator

## MANUAL OF RECORDING AND OBSERVATION TECHNIQUES FOR MOTHER-CHILD INTERACTION

The measures described in this manual were developed in the project, Cognitive Environments of Urban Pre-School Children, supported by: Research Grant #R-34 from the Children's Bureau, Social Security Administration, and the Early Education Research Center, National Laboratory in Early Education, Office of Education, both of the U.S. Department of Health, Education, and Welfare; the Division of Research, Project Head Start, U.S. Office of Economic Opportunity; the Ford Foundation Fund for the Advancement of Learning; and grants-in-aid from the Social Science Research Committee of the Division of Social Sciences, University of Chicago.

# THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN

The research sample for the Cognitive Environment Study was composed of 163 pairs of Negro mothers and their four-year-old children, from three socioeconomic classes, defined by father's occupation and parents' education: upper-middle, professional and executive, with college education; upper-lower, skilled and blue collar, with high school education; lower-lower, semiskilled and unskilled, with no greater than tenth-grade education; a fourth group included father-absent families living on public assistance, otherwise identical to the lower-lower class group.

Subjects were interviewed in the home, and mothers and children were brought to the University of Chicago campus for testing, when the children were four years old. Follow-up data were obtained from both mother and child when the child was six years of age, and again at seven years.

Principal Investigator for the project is Professor Robert D. Hess, formerly Director, Urban Child Center, University of Chicago, now Lee Jacks Professor of Child Education, School of Education, Stanford University.

Co-Investigator for the follow-up study is Dr. Virginia C. Shipman, Research Associate (Associate Professor) and Lecturer, Committee on Human Development, and Director, Project Head Start Evaluation and Research Center, University of Chicago, who served as Project Director for the pre-school phase of the research.

Dr. Jere Edward Brophy, Research Associate (Assistant Professor), Committee on Human Development, University of Chicago, was Project Director for the follow-up study and participated as a member of the research staff of the pre-school study.

Dr. Roberta Meyer Bear, Research Associate (Assistant Professor), Committee on Human Development, University of Chicago, participated as a member of the research staff during the pre-school and follow-up phases of the project and was in charge of the manuscript preparation during the write-up phase of the research.

Other staff members who contributed substantively to the project include Dr. Ellis Olim (University of Massachusetts, Amherst), who was responsible for the major analysis of maternal language; Dr. David Jackson (Toronto, Ontario), who was involved in early stages of development of categories for the analysis of mother-child interaction, and participated in the processing and analysis of data; Mrs. Dorothy Runner, who supervised the training and work of the home interviewers, acted as a liason with public agencies, and had primary responsibility for obtaining the sample of subjects; and Mrs. Susan Beal, computer programmer.

# COGNITIVE ENVIRONMENT STUDY

# MANUAL OF RECORDING AND OBSERVATION TECHNIQUES

# FOR MOTHER-CHILD INTERACTION

# SUMMER 1967

The structured mother-child interactions in the study of the Cognitive Environments of Urban Pre-School Children were observed and tape recorded. The verbalizations of the mothers and children were monitored through a microphone suspended from the ceiling immediately above the small table at which the subjects were seated. The microphone hung about 5½ feet from the floor, so that it was close to the subjects but out of their visual field when they attended to the task materials on the table.

All recording equipment other than the microphone described above was situated in the adjacent observation room, out of sight of the subjects. This equipment included one tape recorder which recorded the interaction of the subjects and at the same time broadcast it for monitoring by the observer. A second tape recorder was used by the observer to record his running narrative description of the interaction. To facilitate coordination of the transcripts of these two recordings (subjects' verbalization and observers' comments) a timing mechanism was added to the system so that a "beep" signal was sounded on each tape simultaneously every 30 seconds. When the tapes were later transcribed these beeps were numbered consecutively as they appeared and were used as anchor points for coordinating the two data sources in time sequence. By using the two transcripts in combination, coders could place a particular movement or physical action as having occurred before, during, or after particular verbalizations.

The subjects were seated at a small table (short enough for the child to look down on) immediately in front of a oneway observation window which appeared to be a mirror. The mothers were informed that the interaction was to

be observed and tape recorded but were asked not to reveal this to the children. The observer stood immediately behind the window so that he was only a few feet from the subjects and could easily perceive the task-relevant attributes of the materials manipulated by the subjects.

The behavioral observations were made at the level of the "molar behavioral act" as described by Tolman (1932). Unless self-explanatory, physical movements were described with reference to their apparent immediate context. For example, it did not suffice to report only that a mother smiled, since she may have smiled at her child, at the tester, or in reaction to her own thoughts. Assuming that she did smile at her child it was important to know whether the smile constituted a supportive encouragement occurring while he was attempting to formulate a response or a reward given in reaction to a response. A properly reported observation included such pertinent information, e.g., "As the child places the last block correctly, the mother smiles and compliments."

Necessary as it was to attempt to include the intent of the actor in describing such purposive behavior, the observation remained behavioral. Generalities and unsupported inferences were avoided in favor of reporting specific physical actions. For example, a mother was not simply described as "angry." Her specific behavior, such as glaring at the child, physically punishing him, or making derogatory or rejecting gestures was described. Although the observers were instructed to report <u>any</u> behavior that appeared relevant at any point in time, behaviors falling in certain specific categories were given consistent priority:

1) The spatial location of all task materials.

2) Pointing or gesturing toward the task materials and movement of the task materials by either subject (mother or child).

3) Task-specific responses (correct or incorrect; if incorrect, including the precise nature of the error).

4) Facial expressions, gestures, and other forms of non-verbal communication.

5) The child's attention to the mother (including specific description of his behavior when he "tuned out" from the task).

6) All physical contact between the subjects (restraint, manual guidance, affectionate touches, etc.).

7) The quality of the child's responses (purposive and systematic vs. random guessing; involved vs. uninvolved).

The observations for the entire sample were made by two trained observers. At first both observed each interaction, making two observation transcripts. Analysis of these transcripts showed, however, that only one observer was necessary. Agreement on the basic, required data listed above was nearly perfect, with differences due to occasional omissions (rather than contradictions). An analysis of these commonly-observed cases showed no recognizable trends suggesting any systematic difference in the type of data reported. A later analysis using rating scale data from groups of cases (matched in social class composition) done separately by the two observers also showed no differences attributable to the observers.

Although this method of data collection was cumbersome and expensive, it has the advantage of yielding a permanent body of raw data. In contrast to the use of preset coding categories, this method allows continual refinement of analytic procedures and makes it possible to resolve differences between raters or coders by returning to the data.

Reference: E. C. Tolman. Purposive Behavior in Animals and Men. New York: The Century Company, 1932.